indoors ($p< 0.001$), gender ($p=0.044$), fracture side ($p=0.328$). Admission haemoglobin, age, and gender contribute to the NHFS, so excluded for regression analysis. Following regression analysis (1) on 1-year mortality: NHFS ($p=0.0002$), walking ability indoors ($p=0.1936$), outdoors ($p=0.3348$); (2) on survival period: NHFS ($p=0.0014$), walking ability outdoors ($p=0.0037$), indoors ($p=0.7118$).

Conclusions: Mortality risk is multi-factorial. We support the NHFS as a predictor for mortality risk at 1 year. Pre-admission walking ability outdoors with NHFS in a grid format can make an audit/research tool that standardises medical risk, and account for the likely prosthetic use.

ASIT SHORT PAPER PRIZE: 0273: THE USE OF SOUND ANALYSIS TO GUIDE FEMORAL REAMING IN UNCEMENTED TOTAL HIP ARTHROPLASTY: A NEW CONCEPT

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Aim: To establish the eficacy of sound signals analysis in objectively evaluate the quality of femoral canal reaming and avoid fracture intraoperatively.

Methods: We analysed the frequencies of sound signals recorded via a bone conduction microphone during reaming of the femoral canal in a series of 20 consecutive patients undergoing uncemented THR. The transduce resonances in the femur recorded by wireless transmitter.Hammaring sound frequencies and intensity were analysed using Matlab spectrum analyser software and Fast Fourier Transforms (FFT).

The patterns of sound frequencies compared with preoperative templating, surgeon judgment intraoparativly and post operative x rays All patients were followed up clinically and radiologically for 1year to determine the integrity of the fixation.

Results: There was a consistent pattern of frequency changes detected in all cases with a definite increase in the amplitude of sound frequencies between 600 and 1000Hz when the tension of the reamer moves from loose to tight during hammering. Adding all of the dB values between 600 to 1000 Hz showed an average of 449.6 % increase.

Conclusion: There are identifiable audio frequency changes pattern associated with satisfactory reaming. Our findings may pave the way for the development of a real-time intraoperative reaming audio analyser.

ASIT SHORT PAPER PRIZE: 1342: SETTING UP A LIVE NEAR INFRARED IMAGING SYSTEM FOR SENTINEL LYMPH NODE BIOPSY

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Background: The Near Infrared range of the electromagnetic spectrum forms an optical 'transparency window' for deep tissue imaging as NIR light is able to penetrate tissues without being scattered or absorbed. In this paper we have demonstrated the setup of a live NIR imaging system using basic components for image guided Sentinel Lymph Node Biopsy (SLNB).

Materials & Methods: Excitation LED light source of 630nm, band pass emission filters of 700nm and 850nm, a thermoelectrically cooled UV-Vis-NIR sensitive Hamamatsu ORCA2 camera and HC live imaging software for image capturing. The basic principal of NIR imaging was demonstrated by converting a simple Digital 4 megapixel camera to a NIR camera by removal of its IR filter. NIR emitting fluorescent nanoparticles were injected in a chicken leg ex vivo and also into the hind limb of an anaesthesized rat ($n=4$) to demonstrate deep tissue imaging and localisation of the SLN.

Results: The NIR imaging system successfully visualised NIRQDs injected up to a depth of 1.5cm in chicken tissue and also the SLN as it was localised after in vivo injection in a rat model.

Conclusion: A simple, portable and cost effective live NIR imaging system has been demonstrated for image guided SLNB.

ASIT SHORT PAPER PRIZE: 1388: MULTI-PARAMETRIC MRI – ULTRASOUND FUSION TARGETED BIOPSIES USING VARIAN BRACHYTHERAPY SOFTWARE: A PRACTICAL SOLUTION TO DELIVER TARGETED BIOPSIES

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Introduction: Multi-parametric MRI and ultrasound fusion targeted biopsies (M-UFTB) of suspicious lesions are emerging as useful tools in prostate cancer diagnosis. We describe our technique for M-UFTB using standard brachytherapy software with an additional 'image–fusion' option.

Methods: MRI lesions on T2 imaging were marked as a Region of Interest and imported into Varian brachytherapy software. The Region of Interest and peripheral zone sectors were contoured and then fused with live ultrasound images. Biopsies were taken in the region of interest followed by targeted biopsies of the peripheral zone.

Results: Thirty seven patients with a mean age 64 years (49-67), PSA 6.7 ug/L(1.2 - 22) and prostate volume 50mls (20-120) underwent M-UFTB of an identified lesion. Cancer was found in 70% of cases (26/37) and of these 62% (16/26) had clinically significant disease. Cancer was detected outside the region of interested in 49% (18/37) patients and of these 89% (16/18) was clinically significant.

Conclusions: M-UFTB can be carried out with existing Varian brachytherapy software and when combined with transperineal sector biopsies>70% are positive. However, clinically significant disease may exist within normal appearing peripheral zones. Carefully targeted biopsies of the peripheral zone may be as important as targeting the Regions of Interest.

ASIT SURGICAL EDUCATION PRIZE: 0486: THE ROLE OF FEEDBACK IN UNDERGRADUATE MEDICAL STUDENT TECHNICAL SKILLS ACQUISITION: INVESTIGATING THE EFFICACY OF VIDEO ASSISTED FEEDBACK

Craig Nesbitt [1], Dondorebarwe Sakutombo [2], Ian Pooleman [2], Anil Gungadeen [2], Jenna Chambers [2], Helen Jones [2], Gerard Stansby [1], Roger Searle [2]. [1] *Freeman Hospital, Newcastle Upon Tyne, UK;* [2] *Newcastle University, Newcastle Upon Tyne, UK.*

Aim: To establish the role of video assisted feedback in undergraduate clinical skills acquisition

Methods: 33 suturing novices completed an assessed basic suturing skill in a Scotia Medical Observation Training System (SMOTS) examination bay. Candidates were then randomised into 3 feedback groups. 1) standard lecture feedback (SLF). 2) viewed their performance on video unsupervised (UVF). 3) watched their videoed performance with individualised expert feedback (EVF). All candidates repeated the assessed suturing skill and completed post training questionnaires.

Results: All groups improved their clinical performance (SLF $p=0.007$, UVF $p=0.002$, EVF $p=0.001$). Candidates receiving UVF and EVF demonstrated superior improvement compared to SLF. No significant difference was noted comparing UVF and EVF ($p=0.593$). Candidates preferred video feedback, and favoured EVF. All agreed video feedback improved their subsequent performance

Conclusion: This is the first trail to demonstrate significant improvement in surgical skill following UVF. Although candidates prefer individualised feedback, it conferred no statistical advantage in performance in our trial and it represents a impractical option for clinical skills tutors. With the advances in video recording we see an expanding role for unsupervised feedback to improve student satisfaction and safe performance in undergraduate clinical skills training.

ASIT SURGICAL EDUCATION PRIZE: 0554: LAPAROSCOPIC SKILLS PERFORMANCE WITH STEREOSCOPIC VISION AS COMPARED TO THE STANDARD LAPAROSCOPIC VISION: A RANDOMISED CONTROL STUDY

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Aim: Evaluate the effect of 3-dimension(3D) versus 2-dimesion(2D) imaging on the performance of novice laparoscopic surgeons(NLS) practising validated laparoscopic tasks until proficiency in simulated settings.

Method: Fifty four NLS randomly and blindly divided into 2groups; half worked with 2D and half 3D. The tasks from the Fundamentals of Laparoscopic Surgery (FLS) included Peg transfer, Endoloop, Extracorporeal and Intracorporeal suturing. All 3D participants underwent adaptation exercise to assure they appreciate the 3D picture. Performance evaluated according